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INTERNATIONAL BUSINESS MACHINES CORPORATION

Dated: January 29, 2014



*OS/2 Warp Server
for e-business*
(Course Code WS97)

Student Exercises
ERC1.0

IBM Learning Services
Worldwide Certified Material

Publishing Information

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September 1999 Edition

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Exercise Description

Exercise Instructions — This section contains what it is you are to accomplish. There are no definitive details on how to perform the tasks. You are given the opportunity to work through the exercise given what you learned in the unit presentation, utilizing the unit Student Notebook, your past experience and maybe a little intuition.

Overall Exercise Guide Information: The objective of these exercises is to familiarize the student with various phases of installing, configuring, and administering Warp Server for e-business.

Lab systems should be initially installed with either Windows 95 or NT server as a primary partition, using only a portion (500 MB) of the complete drive space. This will facilitate later labs which will require systems with these operating systems as additional clients and integration of NT servers into a Warp Server domain. Students should not delete these preinstalled environments when installing Warp Server for e-business.

To properly explore the LVM features of Warp Server for e-business, some specific partition setup must be done at initial install. This lab guide will detail the steps for this setup during the exercises, where appropriate. Students should read over the goals and steps of each exercise before starting the exercise itself.

The result of these labs will be a multiple domain setup, each domain consisting of four machines. Students will tend to work in groups of four, although there will cross domain labs that will require interaction. Along the way, students will be setting up domain controllers, backup domain controllers, and additional servers. They will be defining users, domain resources, sharing and using these resources, and accessing resources from other domains. Labs will demonstrate seamless access from a Windows client (Network Neighborhood) and managing NT Server resources as part of an OS/2 Warp for e-business domain.

The instructor will assign Domain names, Server names, Userids, IP addresses, as required. As a general “template,” the names should follow these guidelines:

Domains - WS970A, WS970B, WS870C, WS970D, WS970E, WS970F, etc

Servers - WS970A1, WS970A2, WS970A3, WS970A4, (Domain WS970A)
WS970B1, WS970B2, WS970B3, WS970B4, (Domain WS970B)
WS970C1, WS970C2, WS970C3, WS970C4, (Domian WS970C)
etc..

All IP addresses are defined as a single "net" (supernet netmask).
The instructor machine may have a different address than listed..

IP addresses -

192.168.1.1 netmask 255.255.248.0 - system WS970A1
192.168.1.2 netmask 255.255.248.0 - system WS970A2
192.168.1.3 netmask 255.255.248.0 - system WS970A3
192.168.1.4 netmask 255.255.248.0 - system WS970A4
192.168.2.1 netmask 255.255.248.0 - system WS970B1
192.168.2.2 netmask 255.255.248.0 - system WS970B2
192.168.2.3 netmask 255.255.248.0 - system WS970B3
192.168.2.4 netmask 255.255.248.0 - system WS970B4
192.168.3.1 netmask 255.255.248.0 - system WS970C1
192.168.3.2 netmask 255.255.248.0 - system WS970C2
192.168.3.3 netmask 255.255.248.0 - system WS970C3
192.168.3.4 netmask 255.255.248.0 - system WS970C4
and so forth

Default router - 192.168.0.1 (instructor's machine).
Host name - same as the Server name.
Name server - 192.168.0.1 (instructor's machine).
Local Domain name (TCP/IP) - ws970ip.ibm.com

Userids - Administrator
AdminA1, AdminA2, AdminA3, AdminA4, (Domain
WS970A per system)
AdminB1, AdminB2, AdminB3, AdminB4, (Domain
WS970B per system)
AdminC1, AdminC2, AdminC3, AdminC4,
and so forth

Userids - User level
UserA1, UserA2, UserA3, UserA4, (Domain WS970A
per system)
UserB1, UserB2, UserB3, UserB4, (Domain WS970B
per system)
UserC1, UserC2, UserC3, UserC4,
and so forth

All passwords should be set to the same as the Userid

Exercise 1. Installing OS/2 Warp Server for e-business

What This Exercise is About

This lab will install Warp Server for e-business on a system which already has a previous operating system installed. Do not remove or replace the previous operating system, we will use Boot Manager to allow us to select which operating system will be started.

Quick Beginnings: Installing OS/2 Warp Server for e-business will be your primary reference for this lab.

What You Should Be Able to Do

At the end of the lab, you should be able to:

- Install Warp Server for e-business
- Maintain a previous OS as still startable
- Identify the selections and decisions that must be made while installing

Introduction

Please read through the full lab steps before starting this lab. We will be installing Warp Server for e-business on a system that already has an OS installed. We will wish to still be able to start this other OS in future labs, so we must install Boot Manager to allow us to select which OS to start. The partitioning of the lab systems should have a single 500 MB partition on which this other OS resides, with the remainder of the drive available for our use.

To properly demonstrate the features of LVM and JFS (new features) in later labs, we will need to use some command line invocations of LVM to set up specific partition layouts. You have not been presented with LVM details yet, but the lab instructions will give you a “cookbook” set of instructions that you can use, and which you will understand in later lectures and labs.

Each domain “group” will have to work together to decide which system will be initially installed as a domain controller. There will be one DC for every set of four machines. The remaining systems will be installed as Additional servers (for now).

You should already understand which features will need to be installed, and an overview of the steps needed to install them.

You will require the installation CD-ROM and three diskettes.

Exercise Instructions

- ___ 1. Create the three installation diskettes using the batch file on the CD. If you have problems, contact the instructor.
- ___ 2. Boot the system using the installation diskettes.
- ___ 3. Pause and read the following information when you get to the panel that offers a choice to drop to a command prompt (F3). At this point, we will be setting up some unusual partition layouts. This will allow us to explore some features of LVM in later labs. If you do not understand the following steps, don't let it concern you, just follow the "script" We will be using command line LVM to create these partitions. If you wish, you can review the layout we will create during this install in step 6.
- ___ 4. Press F3 to drop to a command line prompt. Change to the directory **los2image\disk_6 on the CDROM.**
- ___ 5. Key the following commands exactly as given:
 - LVM /BOOTMGR: 1
 - LVM /CREATE:PARTITION,Warp5,1,500,primary,bootable,firstfit,fromstart
 - LVM /CREATE:VOLUME,COMPATIBILITY,OS2BOOT,C:,Warp 5,1,Warp5
 - LVM /HIDE:LVM1
 - LVM /CREATE:PARTITION,TEMP,1,100,logical,nonbootable,firstfit,fromstart
 - LVM /CREATE:PARTITION,PART_200,1,200,logical,nonbootable,firstfit,fromstart
 - LVM /CREATE:VOLUME,COMPATIBILITY,NOBOOT,E:,Data,1,PART_200
 - LVM /DELETE:PARTITION,1,TEMP

This will:

 - Install BootManager on the drive.
 - Create a primary partition to install OS/2 Warp Server on.
 - Assign it as part of a volume.
 - Hide the Windows partition from OS/2
 - Create a temp partition.
 - Create a Data partition.
 - Assign the Data partition to a volume and its letter to "E:"
 - Delete the temp partition, which will leave a "hole" we will use in later labs.
- ___ 6. Key EXIT to return to the installation panels. When you get to the point where it offers a choice to select an install partition, you should choose to do so. Using the LVM panel that appears, mark the Volume/Partition labeled as "Warp 5" as installable. Save the changes.

Note: At this point you should be able also see the Data volume we have created in Step 5. If you change to the physical view, you can see the "hole" in the partition layout we created for use in later labs.

- ___ 7. After you have selected the newly created "Warp 5" Partition as installable you should be able to continue with the installation panels and select the

features you wish installed. Use the Domain name, Server name, Userid, and IP address as assigned to by the instructor. Select one system to be installed as a Domain controller, within your group of four systems, and the remaining systems should be installed as additional servers (for now).

- ___ 8. In general, you will want all features installed except those relating to RIPL loading of clients. We will not be using this feature in any of the labs in the course. Make sure you explore the various options and pull-downs available in each of the panels as you go through the install.
- ___ 9. Verify that you have a working OS/2 Warp Server for e-business installation.

END OF LAB

Exercise 2. Installing Additional Components

What This Exercise is About

In this lab, students will install Domino Go and WebSphere onto their working systems.

What You Should Be Able to Do

At the end of this lab, you should be able to install additional components of OS/2 Warp Server for e-business. You should be able to identify and install an updated Java run time library as support for the WebSphere component as required.

Note: This course does not cover the HTML programming or web page building required for Domino Go, nor the Java servlet environment of WebSphere.

Introduction

You will be expected to format the additional data volume you created in the first lab, and install Domino Go and WebSphere onto these partitions. Detailed instructions will not be given, although students should keep the following points in mind:

- Domino Go has its own servlet environment, which is not needed (or wanted) when installing WebSphere.
- Updated Java run time libraries are frequently available from IBM's Hursely Website. It is recommended that the latest JVM be installed for WebSphere support.
- It is recommended that the data partition these products will be installed on be formatted as JFS.
- There are readme and installation instructions included on the CD-ROM for these additional components. Students should review these files before installing the additional components. Portions of the README have been extracted and supplied below.

Domino Go SERVER DOCUMENTATION

The Quick Beginnings book and Webmaster's Guide for OS/2 are available on the product CD in the subdirectory, d:\DOC\OS2\language. For d:, enter the drive where you put the server CD-ROM. For language, enter the three-character abbreviation of the language you are installing.

For the most current level of the documentation, see the English version on the Domino Go Webserver Web site at Web address:

<http://www.ics.raleigh.ibm.com/dominogowebserver/resource.htm>

CHANGED: INSTALLATION PROCEDURE

The steps for installing and reinstalling Java servlet support have changed. These changes are in the *Quick Beginnings* book in the chapter, Installing your server.

The following change is in the section, "Installing Your Server" for the first time:

When installing the server for the first time, Java servlet support is now an optional component that you can select in Step 2. Because of this change, Step 11 has been eliminated.

SERVICE UPDATE INFORMATION

For current information on product fixes and service updates for Domino Go Webserver, go to Web address:

<http://www.ics.raleigh.ibm.com/dominogowebserver/support.htm>

IBM WEBSHERE APPLICATION SERVER

To get the most updated information, including the latest version of the readme, visit the product Web site at:

<http://www.software.ibm.com/webserver/>

If using Domino Go Webserver on OS/2, do not install Java servlet support when you install Go Webserver. If you have already installed Go Webserver with Java servlet support, uninstall Go Webserver and install it again, without Java servlet support, before installing WebSphere Application Server.

Use the latest fix level of OS/2 JDK 1.1.6, particularly if using a multiprocessor OS/2 system.

Uninstall Java servlet support on Domino Go Webserver before you install WebSphere Application Server. For instructions, see the section on installing WebSphere.

To install on OS/2:

- Locate the install.class file.
- Run the file by issuing the command: java install

Optional Exercises

FTP Server

Start TCPCFG2 and select the Security tab.

Select Add to add a new user.

- User Name > > Publish
- Password > > ws970
- Home Dir > > x:\WWW\HTML
- Where x: is the drive where you installed Domino Go. This will be used in the next optional lab.

Select this user and configure the FTP access. Verify they are enabled and have both read and write access to the home directory specified above.

Close TCPCFG2 and save the changes.

Start FTPD

Start a separate client FTP session with FTP 127.0.0.1

- User <enter>
- Publish
- <Password prompt> ws970 <enter>
- Dir (or ls) <enter>
- bye <enter>

You should have a directory listing of the x:\WWW\HTML directory.

Leave the FTPD server running. You will need it for the next (optional) lab.

END OF LAB

Web Server

Start Domino Go Web Server (if it is not already running)

Verify the FTPD server is running (previous lab).

Start Netscape, and key in the following URL (hit enter):

- `http://127.0.0.1`

You should now be accessing the default Domino Go home page. This is the documentation and administrator access for Domino Go. If you cannot access this page, obtain assistance from your instructor or other students.

Use the Netscape Communicator menu pulldown and open up a Page Composer session. Key some identifying text into the page, and then select the “link” menu button. This will bring up a menu to define the link.

- In the Text field, key in “Domino Documentation”
- In the Link field, key in “Frntpage.html”
- Select OK.

Publish the document to your Web server.

- The “Title” page is what will show up on the users browser and in bookmarks.
- In the HTML Filename field, use “Welcome.html” This is one of the default names defined in Domino Go, but non-existent. Refer to HTTPD.CNF in the ETC directory for details.
- In the Location to Publish field, use:
 - `FTP://Publish@127.0.0.1/www/html`
 - This should be the same user ID you defined in the previous (FTPD) lab.
- User Name: Publish
- Password : ws970
- The above should be the same as defined in the previous lab.
- Select OK.
- Select OK for the “local” filename.
- You should have received a message confirming the update of the page.

Close the Composer and select Reload from Communicator. You should see your new home page displayed. You may also have to flush the cache from Netscape preferences.

END OF LAB

Exercise 3. Starting, Stopping, and Pausing Services

What This Exercise is About

During this lab, you will explore stopping, starting, and pausing some services. During this, we will explore the interdependences of some services.

What You Should Be Able to Do

You should be able to Start, Stop, Pause, and Continue server services. You should be aware of the interdependences of some of these services. You should be able to refer to the *Network Administrators guide* (hard copy or online) to assist you in these tasks.

Introduction

During this lab, you will be controlling the availability of some services. Use Chapter 12 of the *Network Administrators guide* as a reference, either the hardcopy or the online (searchable) information. Feel free to ask any questions of the instructor. This is an opportunity to explore.

Exercise Instructions

Locate and open the LAN Administration view of the local system (your own system).

- ___ 1. Open the services folder.
- ___ 2. Verify that the messenger service is running.
- ___ 3. Send a test message to yourself, using either the Network Messaging tool, or via the command line (NET SEND Userxx <message text>). Verify that you receive it.
- ___ 4. Stop the messenger service, either from the administration tool, or the command line (NET STOP MESSENGER).
- ___ 5. Send another test message to yourself, note the error you receive.
- ___ 6. Attempt to stop the requester service using the administration tool. Note the options you have on the pull-down.
- ___ 7. Stop the requester service from the command line (NET STOP REQ). Note what additional services it stops. These are it's dependencies. Allow it to stop.
- ___ 8. You will need to reopen the administration tool, since it closed down when you logged off. Open the services folder. Note that the requester service is already started automatically.
- ___ 9. Start the server via the tool using default parms. Once the server service has started, refresh the view to see what services it had to start that it is dependent on. You could also have restarted the server service from the command line (NET START SERVER).
- ___ 10. Pause and Continue various services using the tool, or from the command line using NET PAUSE and NET CONTINUE. Review the administrators guide under the Pause and Stop options to see what the differences are between these actions.

END OF LAB

Exercise 4. Managing Multiple Domains and Changing Server Roles

What This Exercise is About

This is a two-part exercise. You will log onto multiple domains in order to manage multiple domains. In the second part, you will setup a backup domain controller.

What You Should Be Able to Do

You will know the requirements for logging on to multiple domains in order to manage them. You will know the steps required to add a backup domain controller to an existing domain.

Introduction

For the first part of this lab, use chapter 6 of the *Network Administrator guide* for procedures and requirements. You will need to work with other groups to define admin IDs and log onto to multiple domains.

For the second part of this lab, use chapter 2 of the *Network administrators guide* Change the role of one of your additional servers into a backup domain controller. Pay particular attention to the procedures needed to (re)synchronize the domain controller and backup domain controller passwords.

Exercise 5. Defining Users, Groups, Resources, and Access Control Profiles

What This Exercise is About

This exercise will introduce the student to defining Users, Groups, Resources, and apply an Access Control Profile to a resource.

What You Should Be Able to Do

Using available product documentation, you should be able to define new users, modify users, define groups, define resources that members of a group can access, and add users to these groups. You should also be able to create and apply an access control profile to a resource.

Introduction

You will be using *The Network Administrator's Guide* as documentation for this lab. This is a multipart lab. Use the Domain Controller system to define the users, groups, and resources. You should use one of the additional servers as a client to test your results.

Exercise Instructions

- 1. For the first part of this lab, you will be using Chapter 5 and Appendix B of the *Network Administrators guide* to create some userids and groups. Use the pattern supplied in the exercise introduction for the names to use for the User IDs. Define one group named GROUP1. You are free to select whatever additional group names you wish. Once you have created users and groups, you should add some users to the group named GROUP1.
- 2. Next, you will defining some resources. You will be using Chapter 6 of the *Network Administrator's guide* as a reference during this part of the lab.
- 3. Create a subdirectory on your "data" drive (the drive letter should be D: unless you have changed the setup). Define this directory as a resource with and alias called "MyData." Create some "test" data files in this directory (copy from another directory, or use the editor to create).
- 4. You will want to create an access control profile for this resource. Refer to Chapter 7 of the *Network Administrator's guide* for details on how to accomplish this. Define the default access as readonly. Define GROUP1 to have read, write, delete, and create access to this resource.

Test your setup.

- 5. Using one of the additional servers, logon on as a client using one of the userid's that is NOT in GROUP1. Using either the resource browser or the command line, "use" the defined resource "MyData" and assign it a letter. Verify that you can see the files in this resource. Attempt to create a new file on this resource (again, using either copy or the editor to create one). You should receive an error and the file should not be created.
- 6. Now logon as one of the users defined in GROUP1 and repeat the above test. You should be able to create new files, change files, and delete files using an id that is part of GROUP1.
- 7. You should also review Chapter 11 of the *Network Administrator's guide* for procedures needed to define and control access to network printers.

END OF LAB

Exercise 6. Managing Volumes and Backup Sets

What This Exercise is About

This exercise has two parts.

The first part will cover creating a volume with LVM using discontinuous partitions.

The second part will cover creating a backup set definition and taking a backup. The target for this backup will be a directory on the newly created volume.

What You Should Be Able to Do

You should be able to use LVM to define partitions and volumes. You should be able to assign a “sticky” drive letter to the resultant volume. You should be able to define a backup set using PSNS and take a backup using this set.

Introduction

During the first lab (installation), you were directed to use the command line capability of LVM to create some partitions in a particular layout. This should have left your system with a discontinuous disk usage pattern. During this lab, you will define partitions for the remaining space on the drive, and then create a volume that will combine these partitions into a single volume (drive letter).

This process should demonstrate the techniques of creating a single volume from multiple partitions, which is exactly the same when multiple partitions are spread across multiple physical drives.

Exercise Instructions

Using Chapter 3 of the *Quick Beginnings* and Chapter 3 of the *Network Administrator's guide* as a reference:

- ___ 1. Use LVM to create partitions for the remaining space on the drive. Note that compatibility partitions cannot be combined into a single volume.
- ___ 2. Combine these partitions into a single volume. Assign the drive letter J: to the volume.
- ___ 3. Format the volume using the JFS file system.
- ___ 4. Share drive letter J: on the network.

In the second part of this lab, you should use the online documentation for the Personally Safe 'N' Sound backup facility. The users guide will assist you in defining a backup set and starting the backup process.

- ___ 5. Using PSNS, define a backup set for your boot drive. Create a directory on the newly created J: drive as a target for this backup. Test the backup. For extra credit, "net use" a drive from one of the other servers in your domain, and use it as a target for your backup.

END OF LAB

Exercise 7. Replication

What This Exercise is About

This exercise is about enabling replication services, both file replication and DCDB replication.

What You Should Be Able to Do

At the completion of this lab, you should be able to enable replication services for both files and the DCDB. You should be able to define which files and directory will be replicated to a backup server.

Introduction

You should be using Chapter 15 and Chapter 2 of the *Network Administrator's guide* as a reference.

Exercise Instructions

It is probably easier to approach this lab in two stages, first implementing file replication and then DCDB replication.

- ___ 1. Select a set of files you wish to be replicated to a second system.

Recommendation: Use the Netscape directory of the DC and replicate to one of the additional servers in your domain.

- ___ 2. Verify that replication is working as expected.
- ___ 3. Follow the *Network Administrator's guide* and enable DCDB replication from the DC to one of the other systems in your domain. Verify your work.

END OF LAB

Exercise 8. Using the Tuning Assistant

What This Exercise is About

This exercise is about using the Tuning Assistant to perform initial tuning of OS/2 Warp Server for e-business.

What You Should Be Able to Do

You should be able to use the Tuning Assistant to perform initial tuning of a OS/2 Warp Server for e-business system.

Introduction

Use the *Performance Tuning Online Manual* as a reference for this lab. It is also available in PDF format shipped with OS/2 Warp Server for e-business.

Exercise Instructions

1. Input various parameters for the amount of requesters, connections, etc, and observe the various changes it makes to PROTOCOL.INI and IBMLAN.INI.

END OF LAB

Exercise 9. Windows Network Neighborhood and NT Server

What This Exercise is About

This exercise will install the Windows 95 Network Neighborhood browser enabler on OS/2 Warp Server for e-business and install the IBM Networks User Account Manager on an NT server.

What You Should Be Able to Do

After this exercise, you should be able to enable the Network Neighborhood browser on the server and install the IBM Networks User Account Manager on an NT server.

Introduction

Use Chapter 12 of the *Network Administrator's Guide* as a reference for enabling the Network Neighborhood browser. Use Chapter 2 of the *Network Administrator's Guide* for instructions on installing the IBM Networks User Account Manager on the NT server (hint: check the section on defining new servers to the network).

You may have to reconfigure bootmanager to allow either NT or Windows 95 to be bootable on the systems to test your installation. You will have a Windows client on at least one of the systems in your domain, and at least one NT Server on one of the systems in your domain. Use the additional servers defined and reboot them to a Windows 95 client and an NT Server.

Exercise Instructions

- 1. Enable the Network Neighborhood browser service on the DC and test your access from the Windows 95 client.
- 2. Install the IBM Networks User Account Manager on the NT Server and test that you can manage NT resources as part of the OS/2 Warp Server domain.

END OF LAB

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Exercise 10. Migration from OS/2 Warp Server Version 4 (SMP or UN

What This Exercise is About

The objective of this lab is allow you to get hands-on experience migrating OS/2 Warp Server SMP Advanced to OS/2 Warp Server for e-business. After you have completed this lab, you should have an OS/2 Warp Server for e-business running.

What You Should Be Able to Do

At the end of the lab, you should be able to:

- Get system information
- Test client access before migration
- Test WorkSpace On-Demand
- Backup all critical files and configuration
- Remove the LAN Distance services
- Remove HPFS386 Access Control Lists (ACLs)
- Proceed the migration processes
- Define the migration volume by using LVM
- Configure the hardware support
- Install and configure the software components
- Install and configure the server components
- Verify/Modify the CONFIG.SYS and AUTOEXEC.BAT
- Proceed the post migration processes (for example restore ACLs)
- Test client access after migration
- Test WorkSpace On-Demand

Exercise Instructions

Migration Processes

Step 1 Start your OS/2 Warp Server SMP 4.0 Advanced

- ___ 1. Power-on your OS/2 Warp Server SMP 4.0 machine and wait for startup completion.
- ___ 2. Open OS/2 Window command prompt from LaunchPad.
- ___ 3. From OS/2 Window command prompt, type the following command to logon.
[C:\]LOGON
- ___ 4. Type the User ID 'USERID' and Password 'PASSWORD', then click OK

Step 2 Get the Information

Assumption: Boot drive is C:

- ___ 1. Get the operating system information.
 - From OS/2 Window command prompt, type the following command and record the free space information.
[C:\]VER/R <Enter>
What is the operating system version?

- ___ 2. Get the hard disk free space information.
 - From OS/2 Window command prompt, type the following command and record the free space information.
[C:\]DIR/W <Enter>
What is the available free space on your server hard disk?

_____ Bytes free
- ___ 3. Get the hard disk partition information.
 - From OS/2 Window command prompt, type the following command and record the hard disk partition information.
[C:\]FDISK <Enter>

Name	Status	Access	FS Type	MBytes

Partition Information

___ 4. Get the HPFS386 File System information.

- From the table 1, if the FS Type is HPFS, type the following command and record the result.

```
[C:\]TYPE CONFIG.SYS | FIND /I "HPFS386" <Enter>
```

-
- If the result is blank, it means the File System on your machine is regular HPFS.

___ 5. Get the products and services information.

- From OS/2 Window command prompt, type the following command.

```
[C:\]MD LAB4 <Enter>
[C:\]SYSLEVEL > C:\LAB4\SYSLEVEL.WS4 <Enter>
```

- You have to wait for a while. After finished, type the following command and exam the result in the SYSLEVEL.WS4 file.

```
[C:\]E C:\LAB4\SYSLEVEL.WS4 <Enter>
```

- Press <F 3> to exit from editor.

___ 6. Get the server and domain information.

- From OS/2 Window command prompt, type the following command.

```
[C:\]NET ACCESS > C:\LAB4\ACCESS.WS4 <Enter>
[C:\]NET ACCOUNTS > C:\LAB4\ACCOUNTS.WS4 <Enter>
[C:\]NET ALIAS > C:\LAB4\ALIAS.WS4 <Enter>
[C:\]NET APP > C:\LAB4\APP.WS4 <Enter>
[C:\]NET GROUP > C:\LAB4\GROUP.WS4 <Enter>
[C:\]NET PRINT > C:\LAB4\PRINT.WS4 <Enter>
[C:\]NET RIPLMACH > C:\LAB4\RIPLMACH.WS4 <Enter>
[C:\]NET SHARE > C:\LAB4\SHARE.WS4 <Enter>
[C:\]NET USER > C:\LAB4\USER.WS4 <Enter>
```

- You may use the text editor edits those files.
- From OS/2 Window command prompt, type the following command and record the result.

```
[C:\&rbrTYPE C:\IBMLAN\IBMLAN.INI | FIND /I "Computername" <Enter>
```

Computername = _____

- From OS/2 Window command prompt, type the following command and record the result.

```
[C:\]TYPE C:\IBMLAN\IBMLAN.INI | FIND /I "Domain" <Enter>
```

Domain = _____

Step 3 Client Access to OS/2 Warp Server SMP 4.0 Advanced before migration

___ 1. Check if the server service is started.

- From OS/2 Window command prompt on the server, type the following command:

```
[C:\]NET START
```

The output list should contain:

```
SERVER
```

___ 2. Test OS/2 Warp 3.0.

- Power-on your client machine and wait for startup completion.
- Reboot the client machine if it's already boot.
- At the Boot Manager menu choose Connect.
- Open OS/2 Window command prompt from LaunchPad.
- From OS/2 Window command prompt, type the following command:

```
[C:\]NET START REQ
```

Wait until the requester starts successful. It can return the following error message if it was already started.

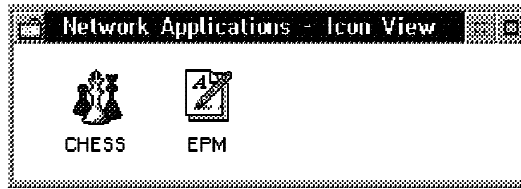
“NET2182: The requester service has already been started.”

- From OS/2 Window command prompt, type the following command:

```
[C:\]LOGON /V:DOMAIN /D:DOMAINxx
```

Where DOMAINxx is your domain name. Use USERxx and PASSxx as user and password to logon, change the xx for group number.

- After you logon successfully, find the Network Applications folder on the OS/2 Desktop.
- Double-click at the Network Applications folder to open it. You should see icons in the Network Applications folder as the following:



- Double-click at the Chess icon to run the application.
- ***Running this application means that you have connection to the server and your USERxx have rights to run programs.***
- Exit from the Chess program and shutdown your client properly.

___ 3. Test OS/2 Warp 4.0.

- Reboot the client machine.
- At the Boot Manager menu choose Merlin
- Open OS/2 Window command prompt from WarpCenter.
- From OS/2 Window command prompt, type the following command:

```
[C:\]NET START REQ
```

Wait until the requester starts successful. It can return the following error message if it was already started.

“NET2182: The requester service has already been started”

- From OS/2 Window command prompt, type the following command:

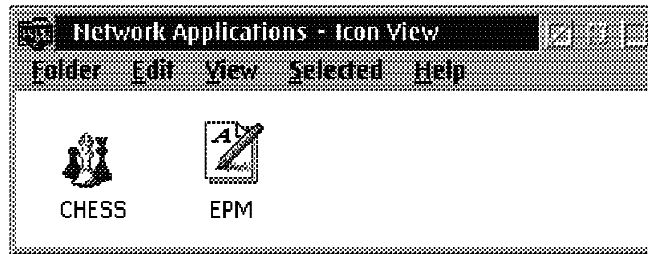
```
[C:\]LOGON /V:DOMAIN /D:DOMAINxx
```

Where DOMAINxx is your domain name. Use USERxx and PASSxx as user and password to logon, change the xx for group number.

- After you logon successfully, find the Connections icon on the OS/2 Desktop.



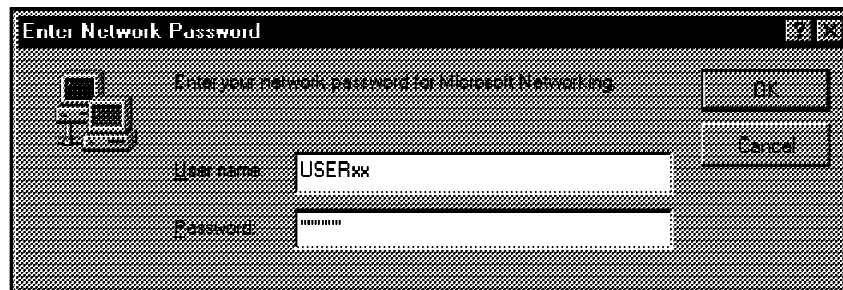
- Double-click to open the Connections. You should see the following folder.
- On the Connections folder, find the Network icon and click on plus (+) sign in front of the folder. You see the 'Network Applications' icon.
- Double click on the Network Application icon. You should see three icon as the following:



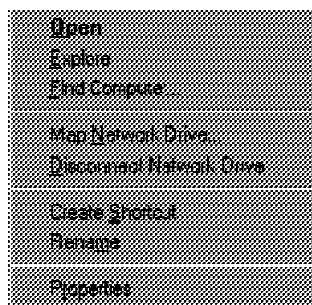
- Double click on the Chess icon to run the chess application.
Running this application means that you have connection to the server and your USERxx have rights to run programs.
- Exit from the Chess program and shutdown your client properly.

4. Test Windows 95

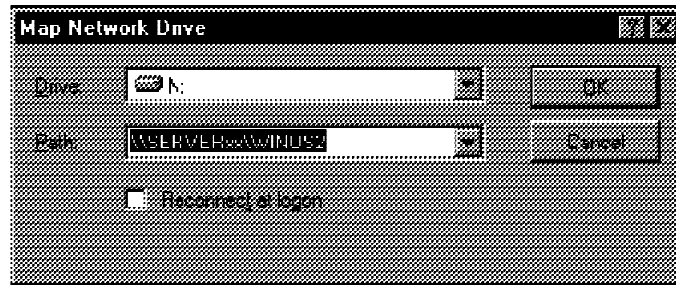
- Reboot the client machine.
- At the Boot Manager menu choose Windows.
- From the OS Loader V4.00 choose Microsoft Windows
- After Microsoft Windows boots completely, you see the 'Enter Network Password' screen as the following:



- From the Enter Network Password Screen, enter USERxx and PASSxx as User Name and Password. (xx refers to your group number.)
- Click right mouse button on the Network Neighborhood icon. Select Map Network Drive... from the menu.



- You should see the following dialog. Select Drive N:, type '\\SERVERxx\WINOS2' for the path and click OK.



- Locate My Computer icon on Windows 95 Desktop.
- Double-click on My Computer icon to open it.
- Find the drive N: and double-click to open it.

This is a drive letter mapped to the directory C:\OS2\MDOS\WINOS2 of your server

- Find the file CALC. The icon looks like the following:



Calc

- Double-click CALC to run the application.
- The calculator application will pop-up on the screen.

This is an WinOS2 application that is in the directory C:\OS2\MDOS\WINOS2 of your server.

Running this application means that you have connection to the server and your USERxx have rights to run programs.

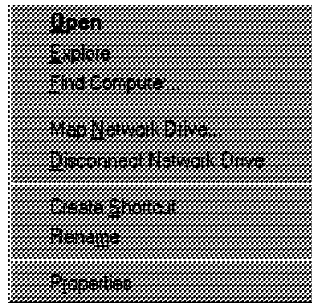
- Exit from the CALC program and shutdown your client properly.

5. Test Windows NT Workstation 4.0.

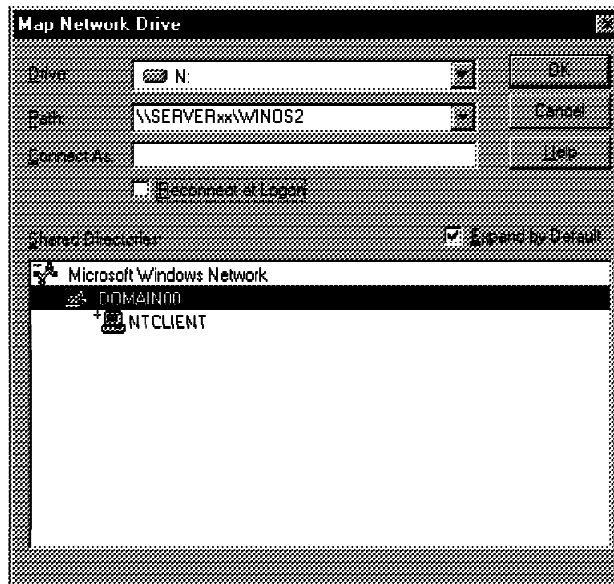
- Reboot the client machine.
- At the Boot Manager menu choose Windows.
- From the OS Loader V4.00 choose Microsoft NT Workstation Version 4.00.
- In the Begin Logon Screen press Ctrl+Alt+Del to start the logon procedure.
- In the Logon Information Screen enter USERxx and PASSxx as User Name and Password. (xx refers to your group number.)

Note: : User ID and password are case sensitive. Make sure that you type them in the CAPITAL letters, otherwise your logon attempt will fail.

- Click right mouse button on the Network Neighborhood icon. Select Map Network Drive... from the menu.



- You should see the following dialog. Select Drive N:, type '\\SERVERxx\WINOS2' for the path and click OK.



- Locate My Computer icon on NT Workstation Desktop.
- Double-click My Computer icon to open it.
- Find the drive N: and double-click to open it.

This is a drive letter mapped to the directory C:\OS2\MDOS\WINOS2 of your server

- Find the file CALC. The icon looks like the following:



Calc

- Double-click CALC to run the application.
- The calculator application will pop-up on the screen.

This is an WinOS2 application that is in the directory C:\OS2\MDOS\WINOS2 of your server.

Running this application means that you have connection to the server and your USERxx have rights to run programs.

- Exit from the CALC program and shutdown your client properly.

Step 4 Test WorkSpace on-Demand 2.0

1. Check if the remoteboot service on your server is started.

From OS/2 Window command prompt on your server, type the following command:

```
[C:\]NET START REMOTEBOOT
```

Wait until the REMOTEBOOT service started successful. It can return an error message if it was already started.
2. Configure the client machine to boot from Network
 - We can have different types of machines and different network environments, so the instructors will help you to do this step.
 - Set your client boot sequence to start booting from the network first.
3. Reboot the client Machine.
 - After reboot, you should see the WorkSpace On-Demand 2.0 loading.
 - When loading completed, you should see the logon screen.
 - You can use USERxx and PASSxx as user id and password to logon. (Don't forget to change the xx to your group number.)
 - After logon successful, you should see some applications.
 - Locate the Chess on the WorkSpace On-Demand 2.0 Desktop.
 - Double-click the Chess icon to run the application.
 - Exit from the Chess program and shutdown your client properly.
 - Reset your client boot sequence to start booting from the hard disk first.

Step 5 Backup Critical Files and Configurations on your server.

1. Backup NET.ACC, NET.AUD, and Access Control Lists.
 - From OS/2 Window command prompt, type the following command.


```
[C:\]BACKACC C:\ /F:C:\LAB4\ACLC.BKP <Enter>
[C:\]COPY C:\IBMLAN\ACCOUNTS\NETACC.BKP C:\LAB4 <Enter>
[C:\]COPY C:\IBMLAN\LOGS\NETAUD.BKP C:\LAB4 <Enter>
```
2. Backup Configuration Files.
 - From OS/2 Window command prompt, type the following commands.


```
[C:\]COPY AUTOEXEC.BAT C:\LAB4 <Enter>
[C:\]COPY CONFIG.SYS C:\LAB4 <Enter>
[C:\]COPY STARTUP.CMD C:\LAB4 <Enter>
[C:\]COPY C:\IBMLAN\IBMLAN.INI C:\LAB4 <Enter>
```
3. Backup DCDB directory.

From OS/2 Window command prompt, type the following command.

```
[C:\]XCOPY C:\IBMLAN\DCDB C:\LAB4\DCDB /S /E /R /V /H /O /T
```


Note: All files and directories that are stored in C:\LAB4 should be copied to a 'safe' place (that is tape media, diskette (if possible), another server, etc...). It is very important to retain a secure backup of this critical information, just in case the migration is not a success and you need to recover this information.

Step 6 Remove the LAN Distance services.

- ___ 1. Open the OS/2 Warp Server Remove folder.
 - Locate the OS/2 System folder on the desktop and open it.
 - Locate the System Setup folder inside this folder and open it.
 - Locate the OS/2 Warp Server Remove folder inside the System Setup folder and open it.
- ___ 2. Run the LAN Distance services remove program.
 - Locate the LAN Distance Remote Access icon and double click on the icon to run the program. The following dialog appears on the screen.
 - Click the <Remove> button to remove the LAN Distance Services.



- Reboot your system.

Step 7 Remove HPFS386 Access Control Lists from drive C (If your partition is HPFS386)

- ___ 1. Using the PREPACL utility to remove HPFS386 Access Control Lists.
 - From OS/2 Window command prompt, type the following command.
[C:]PREPACL /P /D:C: /B:C: \LAB4\ACLC.BAK <Enter>

where

/P is the parameter used to remove the ACL's

/D is the parameter used to denote a specific drive or a directory

/B is the parameter used to specify the file and location of the output file

This command will remove the Access Control Lists (ACLs) from HPFS386 partition on drive C: and save the ACLs information to the ACLC.BAK file.

- Shutdown your system properly.

Step 8 Begin the Migration Phase 0.

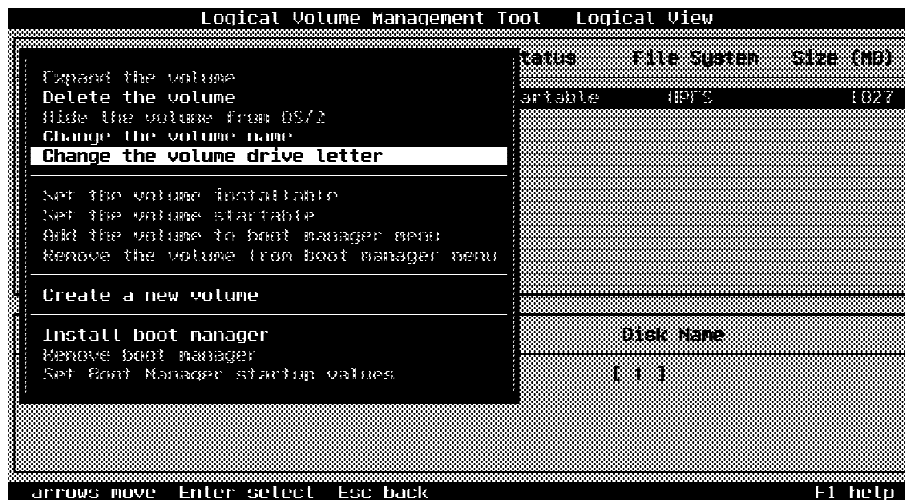
1. Insert the OS/2 Warp Server for e-business installation diskette into the floppy drive A: and reboot the system. Insert diskette 1 and diskette 2 when prompted.
2. After diskette 2, you may get a black screen that says "VCU created 1 LVM computability volumes. Please insert the installation diskette and hit Ctrl-Alt-Del to reboot the system" Follow the instructions. (Do number 1 again)
3. The Welcome screen will pop-up. You should read the information on the screen and press [Enter] key to continue.
4. The OS/2 Warp Server for e-business Installation screen will pop-up. You should read the information on screen and press <Enter> key to continue.
5. The Installation Volume Selection screen will pop-up. You must read the information on the screen. You must do the following:
 - Select the option 2. Specify a different volume. This will bring you to the LVM.
 - There is the Modifying Volume Warning screen appear. Hit <Enter> key to continue.
 - Now, you are in the Logical Volume Manager (LVM) tool. There is a blue window message about Minimum size of 120 MB... on screen. Press the <Enter> key to continue.
 - You should see the Logical View of LVM on the screen. (see the following picture.)

Logical Volume Management Tool Logical View				
Logical Volume	Type	Status	File System	Size (MB)
00000	C: Computability	Mountable	HPFS	2000

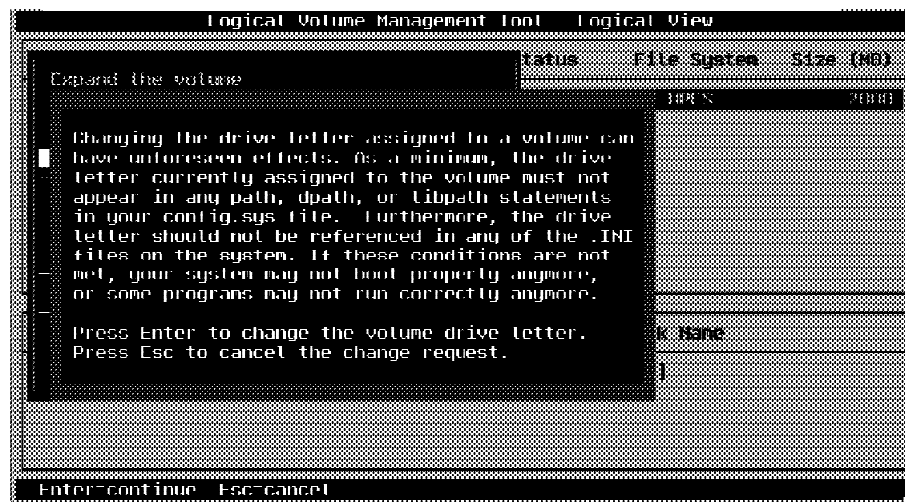
Disk Partition	Size (MB)	Disk Name
[A] Aurora	2000	[1]

[F1] help [F3] exit [F5] Physical View Enter Options Tab Window

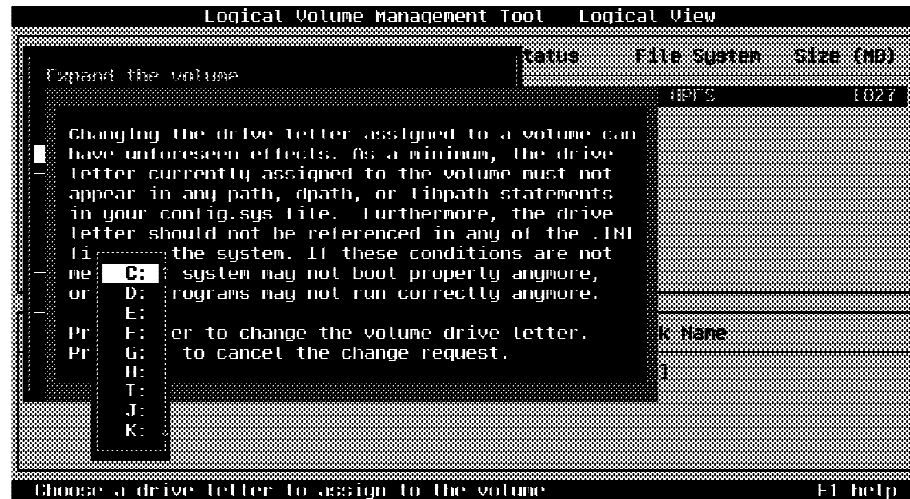
- Check the volume that you want to do migration, **if there is the drive letter C: already on the volume**, you must do the following:
 - Press < F 3 > and select Discard the changes and Exit.
 - Go to number 6 to continue.
- **If there is no drive letter C: assigned on the volume** that you want to do migration, you must follow the instructions below.
 - Select the volume that you want to do migration.
 - Press the <Enter> key, the following menu will be displayed.



- Select the Change the volume drive letter from the menu. The following screen will appear.



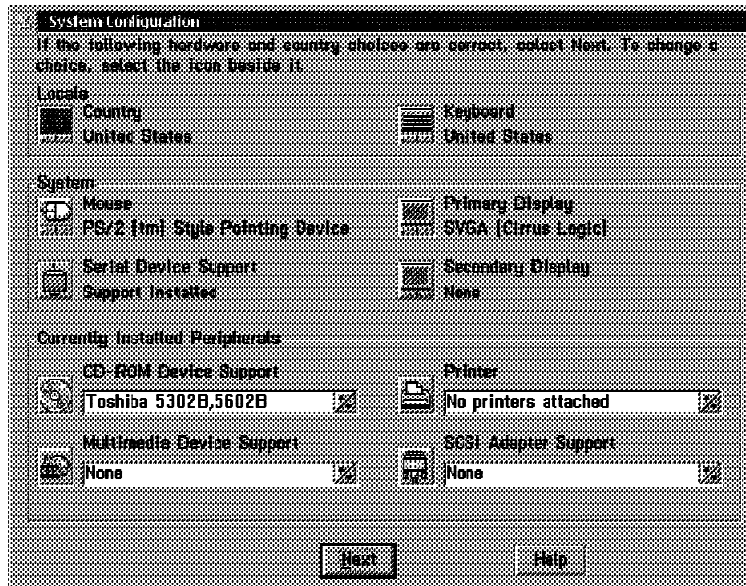
- Read the information on the red window. Press the <Enter> to assign the drive letter to the selected volume.



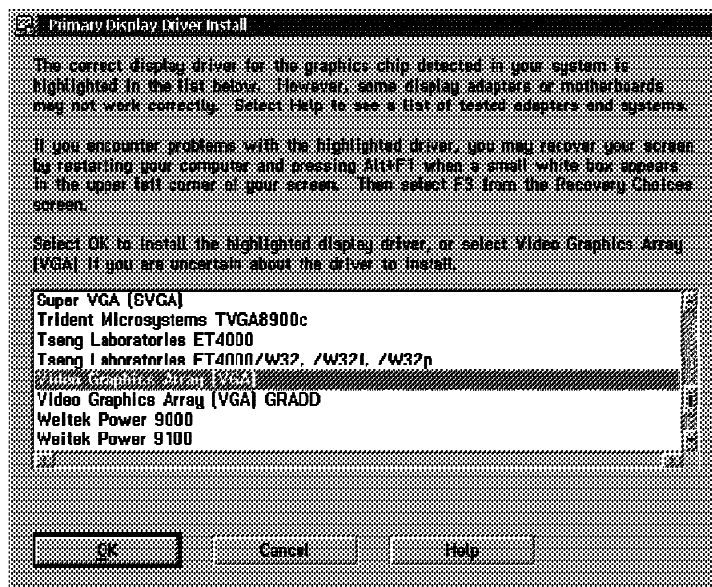
- Select the drive letter C: and Press the <Enter> to save it.
 - If you can't select the drive letter C:, it means you already assigned the drive letter C: to the other volume. You must change the drive letter of the other volume. And you must repeat the steps to assign drive letter C: to the volume that you want to do migration. REMEMBER, the OS/2 Warp Server for e-business will be install on the volume drive C: only.
 - Press < F 3 > and select 'Save the changes and exit'.
 - Reinsert the installation diskette and press Ctrl-Alt-Del to reboot the system.
 - Repeat number 1 in this step again.
- ___ 6. At the Installation Volume Selection screen, select the option '1. Accept the volume'.
 - ___ 7. The Formatting the Installation Volume screen will display. You must select the option '1. Do not format the partition'.
 - ___ 8. If you have the HPFS386 partition, the Warning HPFS386 was detected screen will display. Press the <Enter> key to continue.
 - ___ 9. There might be another warning screen display. It is about the previous version components was detected. (for example TUTORIAL) Press the <Enter> key to continue.
 - ___ 10. Follow the instruction on the screen. Remove the diskette when prompted and Press the <Enter> key to reboot the server.

Step 9 Migration Phase 1

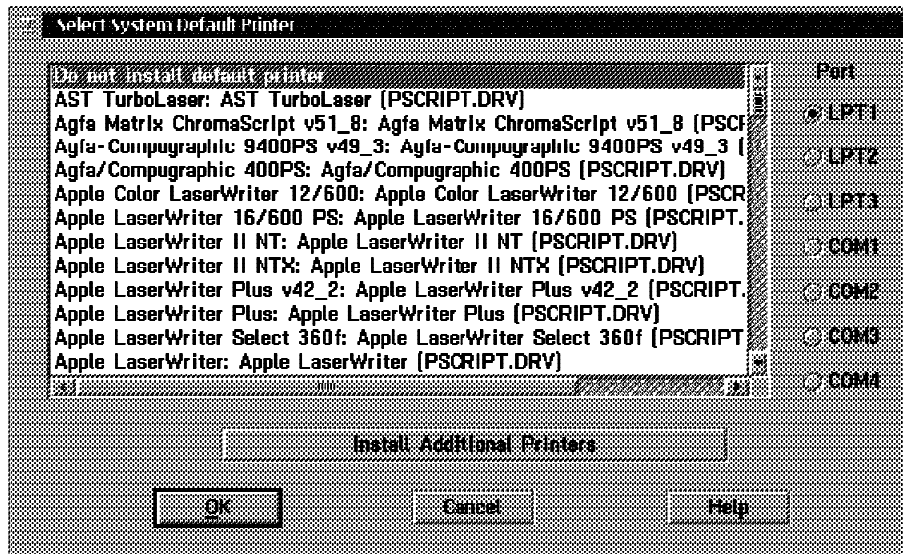
- ___ 1. After you reboot the system, the following screen will display.



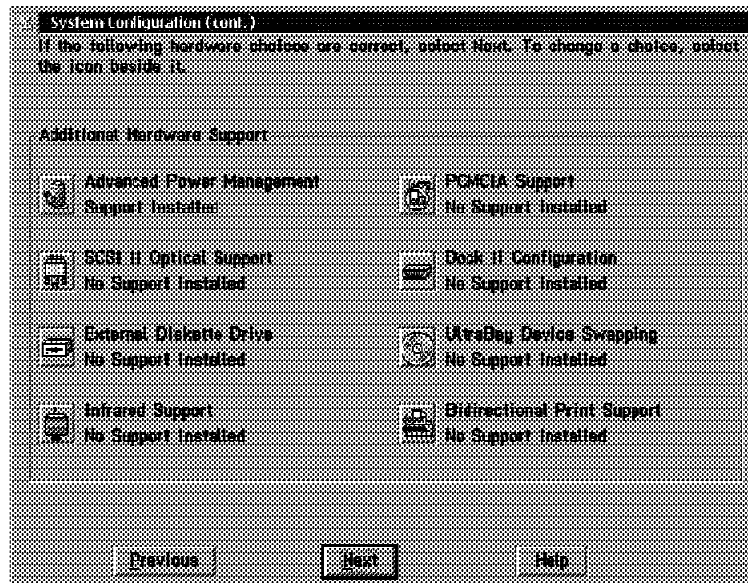
- ___ 2. You must review the hardware information on the dialog above.
- ___ 3. Change the primary display to Video Graphics Array (VGA)
- Click the Primary Display icon in the dialog
 - Select the Video Graphics Array on the list and click OK



- ___ 4. If you want to install some printer, you can do it at this screen.
- Click at the Printer icon, the following dialog appears on the screen.
 - Select the printer driver you want and click OK.



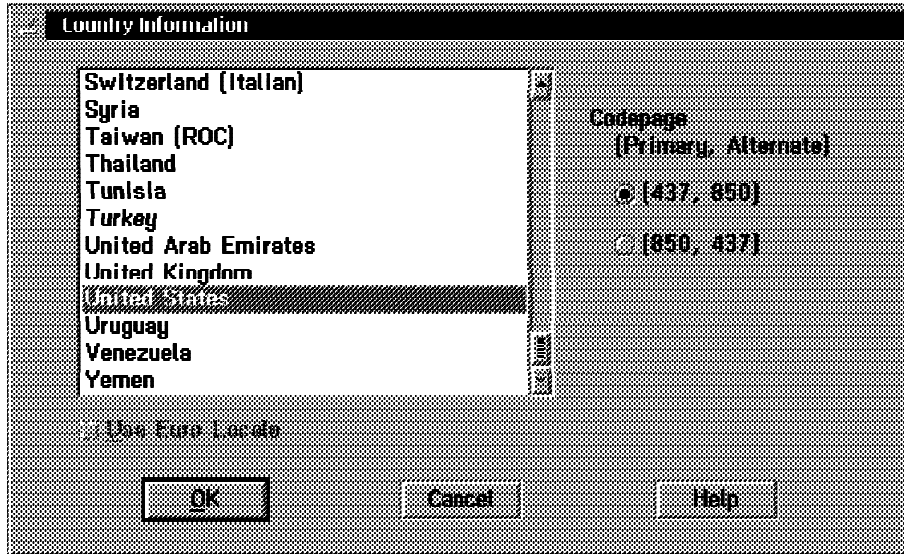
5. Click Next to continue. The next screen will display.



6. Review the additional hardware support

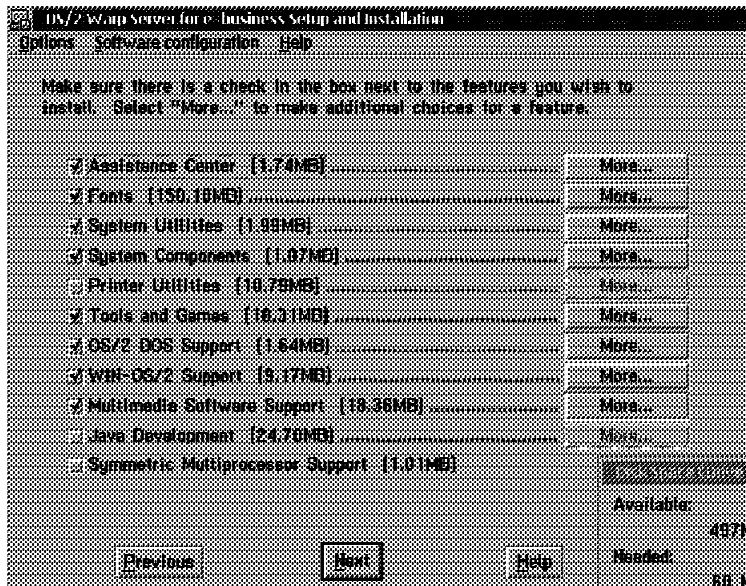
- Leave all hardware support to default

7. Click Next to continue. The Country Information dialog will display.



- Select the country to United States.
- Select the Codepage to (437, 850).
- Click OK to continue.

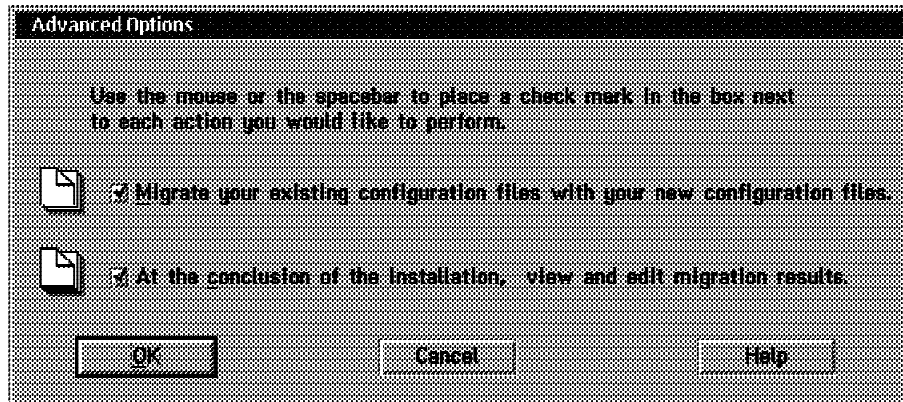
___ 8. The software components screen will display.



___ 9. Review the default software components

- If you want to add or delete the software components, you can do on this screen.
- Click Next to continue.

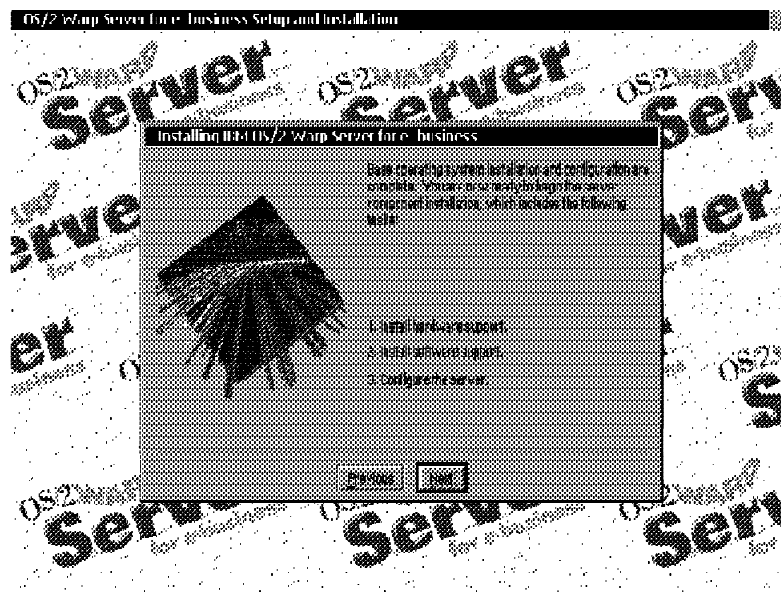
___ 10. The Advanced Options dialog will display as the following.



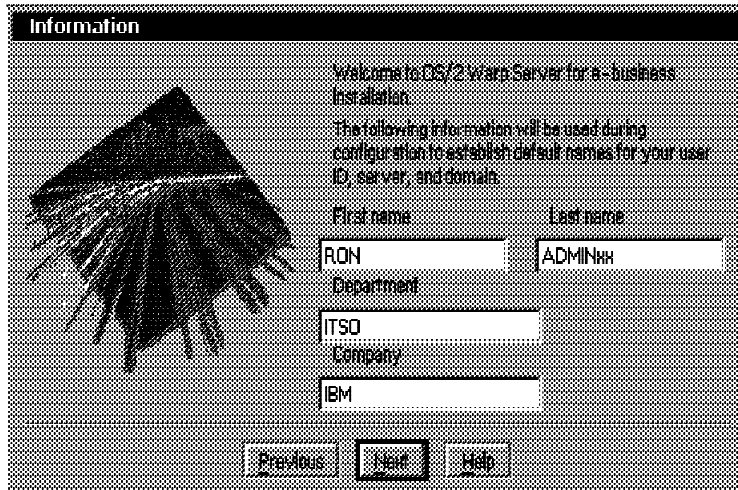
- Ensure that the Migrate you existing configuration files with your new configuration files, and At the conclusion of the installation, view and edit migration results, must be selected.
- Click OK to continue.

Step 10 Migration Phase 2

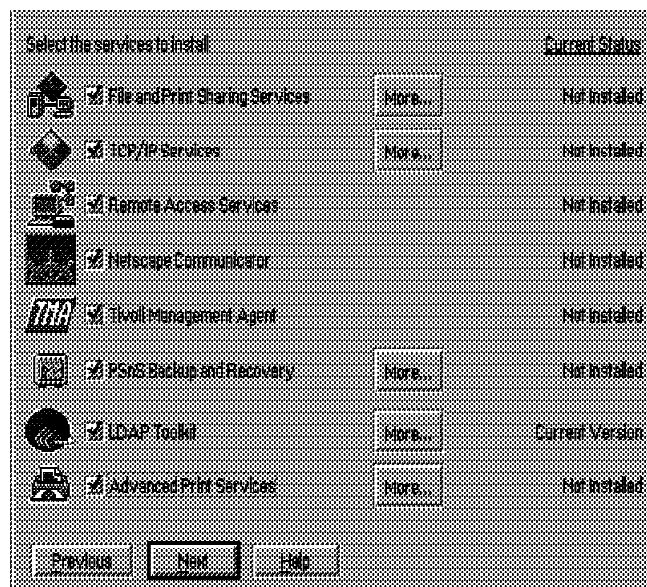
1. When you are approach the following screen, you are in the migration phase 2.



2. Click Next to continue. The following screen will display.



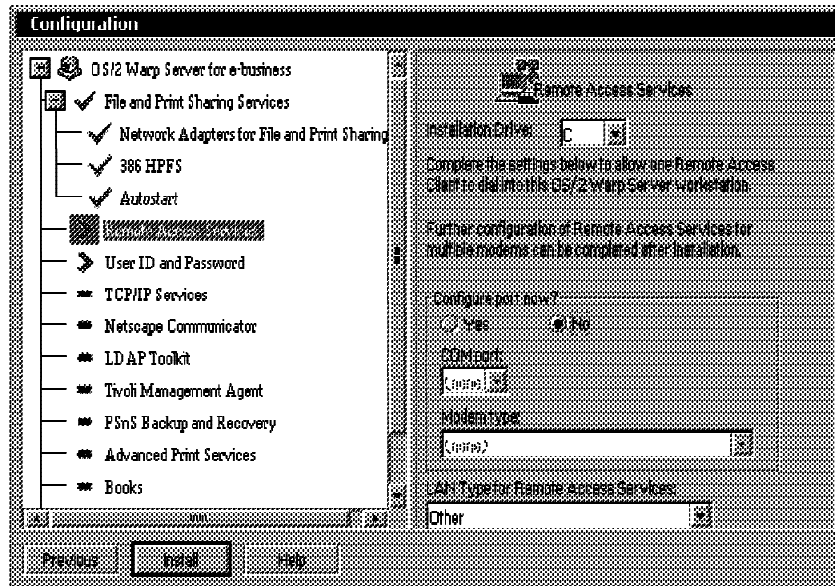
3. Fill the information above into the dialog. (Don't forget to change xx to your group number.)
- Press Next to continue. The following dialog will be displayed.



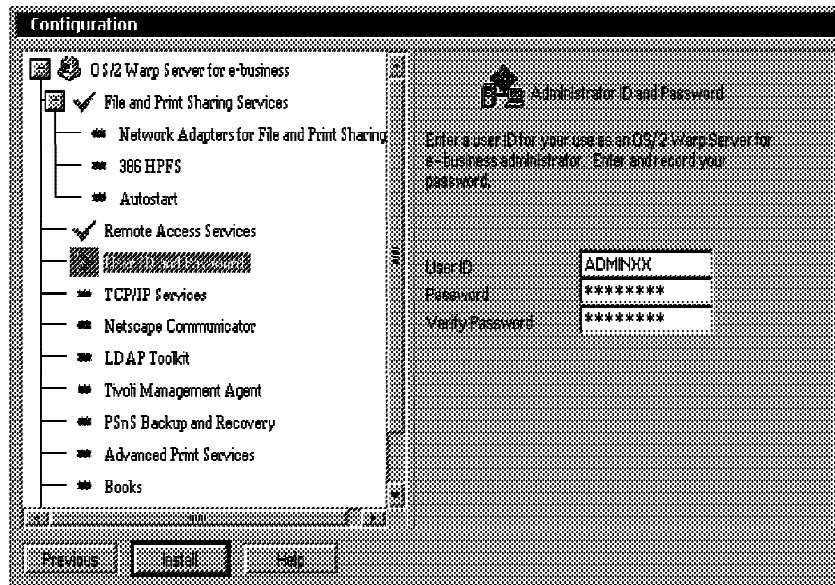
4. This dialog allows you to select the server components to install on your machine.
- Select all server components.
 - At File and Print Sharing Services component, click the More.. button. The following screen will be displayed.



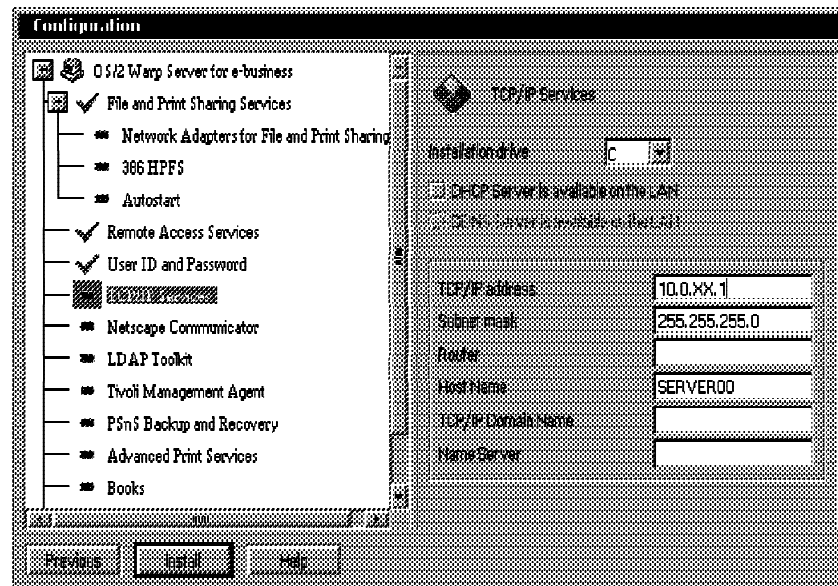
- Ensure that the 'Remote Boot Service for OS/2 Workstation (Remote IPL)' is selected. Click $\frac{1}{8}$ OK' to exit.
 - Click <Next> to continue. The following dialog will be displayed on the screen.
- ___ 5. The Configuration dialog allows you to configure the server components. There are three symbols on the dialog. The check symbol indicates the component has been configured. The red arrow symbol indicates the component needs to be configured. And the symbol indicates the component uses the default configuration.
- Click the File and Print Sharing Services component.
 - On the right window of the dialog, you see the Server and the Domain name.
 - Check them with the information from step 2.
 - The Server type, Server name, and Domain name should not be changed.
- ___ 6. Click the Remote Access Services component. The following dialog will be displayed on the screen. You must do the following.
- On the right window, select the installation drive to C:
 - At the Configure port now?, select No
 - At the LAN Type for Remote Access Services:, select Other if you are using the Token-Ring Network Adapter. Select Ethernet if you are using the Ethernet Network Adapter.



7. Click at the User ID and Password component. The following dialog will be displayed on the screen. You must do the following.



- This configuration allows you to create a new user ID and password for administrator. At the User ID field, type ADMINxx. At the Password and Verify Password fields, type PASSWORD where xx is your group number.
 - The original administrator User ID and password will be replaced with ADMINxx user ID and PASSWORD password. There is no any effect to other users.
8. Click at TCP/IP Services, the following screen display.

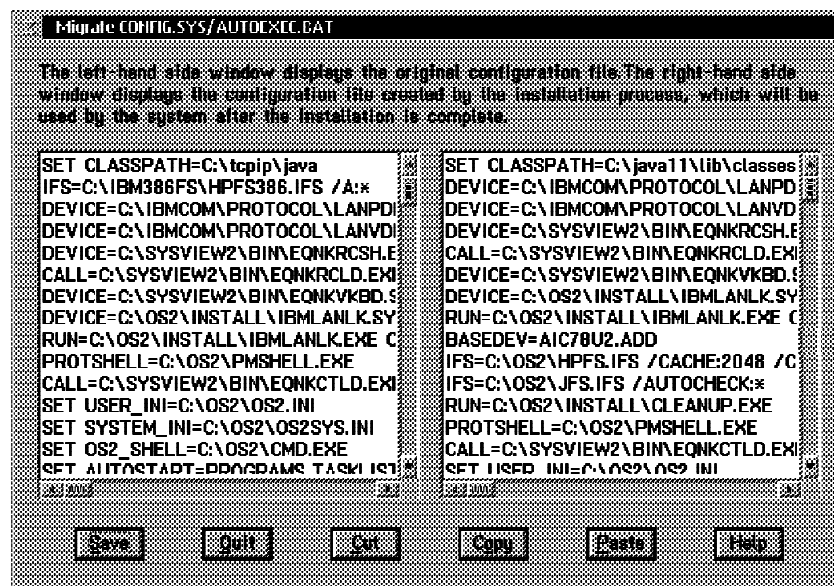


- At the TCP/IP address, type the following IP information:

TCP/IP Address "10.0.xx.1"
 Subnet mask "255.255.255.0"
 Host Name "SERVERxx"

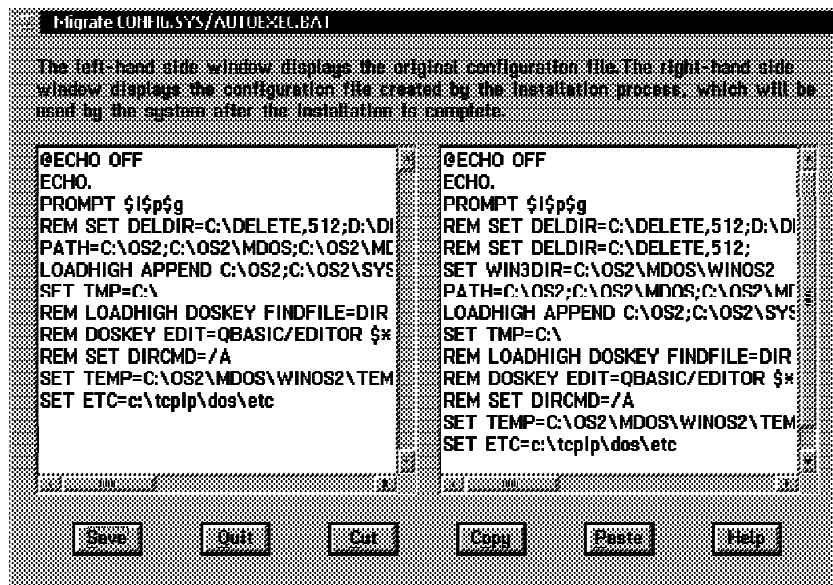
Where xx is your group number.

- Click Install button to continue, follow up the instructions on the screen until the Migrate CONFIG.SYS / AUTOEXEC.BAT screen display as the following:



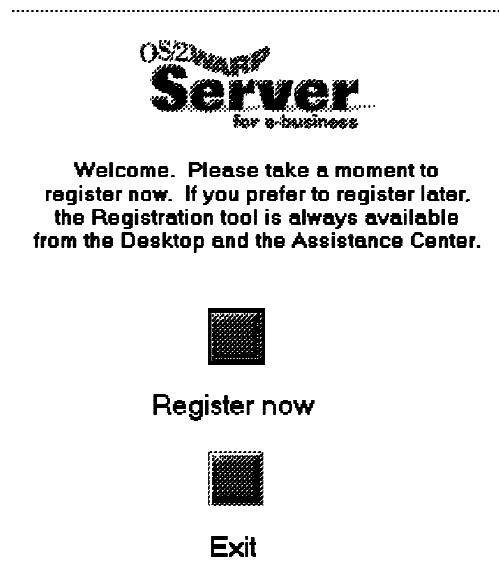
- Verify the changes of CONFIG.SYS file made by the installation program. The original CONFIG.SYS file is on the left window and the new CONFIG.SYS file is on the right window.

- If you make some modification of CONFIG.SYS file, ensure that you save the file before continue.
- Click Quit to continue. The following screen will be displayed. This screen allows you to view and modify the changes to the AUTOEXEC.BAT file.



- Verify the changes of AUTOEXEC.BAT file.
- If you make some modification of AUTOEXEC.BAT file, ensure that you save the file before continue.
- Click Quit to continue.

10. Follow the instruction on screen. When finish, the 'Welcome' screen display as the following:



- Click Exit to quit.

- Congratulations! You are almost successful migration.

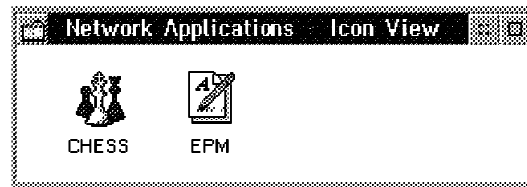
Step 11 Post Migration Processes

- ___ 1. After your system startup completion, logon with administrator user ID and password.
- ___ 2. Open OS/2 Window command prompt from the WarpCenter.
- ___ 3. From OS/2 Window command prompt, type the following command to logon.
 [C:\]LOGON !li.Type the User ID USERID and Password PASSWORD, then press OK
 - You see the error message 'Logon Attempt was unsuccessful'.
 - Try again with the User ID 'ADMINxx' and Password 'PASSWORD' (xx refer to your group number), this time you are successful logon to the system because the original user id and password were replaced with the new user id and password. (Refer to the number 7 in step 10)
- ___ 4. From OS/2 Window command prompt, type the following command.
 [C:\]NET ACCESS > C:\LAB4\ACCESS.WS5 <Enter>
- ___ 5. Using the text editor edits the ACCESS.WS4 and ACCESS.WS5 files. Type the following command.
 [C:\]START E C:\LAB4\ACCESS.WS4 <Enter>
 [C:\]START E C:\LAB4\ACCESS.WS5 <Enter>
- ___ 6. Compare contents on both files. You see there are more contents in the ACCESS.WS4 than the contents in the ACCESS.WS5 file. The reason is the Access Control Lists has been removed before starting the migration.
- ___ 7. Restore the Access Control Lists back to the HPFS386 partition. Type the following command.
 [C:\]PREPACL /R /B:C:\LAB4\ACLC.BAK <Enter>
- ___ 8. Repeat number 3 and 4, the contents of both files should be the same.

Step 12 Client Access to OS/2 Warp Server SMP 4.0 Advanced after migration

- ___ 1. Check if the server service is started.
 - From OS/2 Window command prompt on the server, type the following command:
 [C:\]NET START
 The output list should contain:
 SERVER
- ___ 2. Test OS/2 Warp 3.0.
 - Power-on your client machine and wait for startup completion.
 - Reboot the client machine if it's already boot.
 - At the Boot Manager menu choose Connect.

- Open OS/2 Window command prompt from LaunchPad.
- From OS/2 Window command prompt, type the following command:
[C:\]NET START REQ
Wait until the requester starts successful. It can return the following error message if it was already started.
“NET2182: The requester service has already been started”
- From OS/2 Window command prompt, type the following command:
[C:\]LOGON /V:DOMAIN /D:DOMAINxx
Where DOMAINxx is your domain name. Use USERxx and PASSxx as user and password to logon, change the xx for group number.
- After you logon successfully, find the Network Applications folder on the OS/2 Desktop.
- Double-click at the Network Applications folder to open it. You should see icons in the Network Applications folder as the following.



- Double-click at the Chess icon to run the application.
Running this application means that you have connection to the server and your USERxx have rights to run programs.
- Exit from the Chess program and shutdown your client properly.

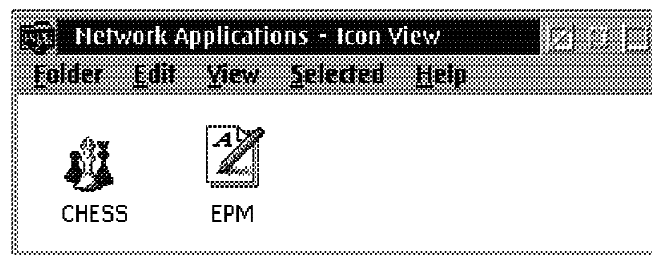
3. Test OS/2 Warp 4.0.

- Reboot the client machine.
- At the Boot Manager menu choose Merlin
- Open OS/2 Window command prompt from WarpCenter.
- From OS/2 Window command prompt, type the following command:
[C:\]NET START REQ
Wait until the requester starts successful. It can return the following error message if it was already started.
“NET2182: The requester service has already been started”
- From OS/2 Window command prompt, type the following command:
[C:\]LOGON /V:DOMAIN /D:DOMAINxx
Where DOMAINxx is your domain name. Use USERxx and PASSxx as user and password to logon, change the xx for group number.

- After you logon successfully, find the Connections icon on the OS/2 Desktop.



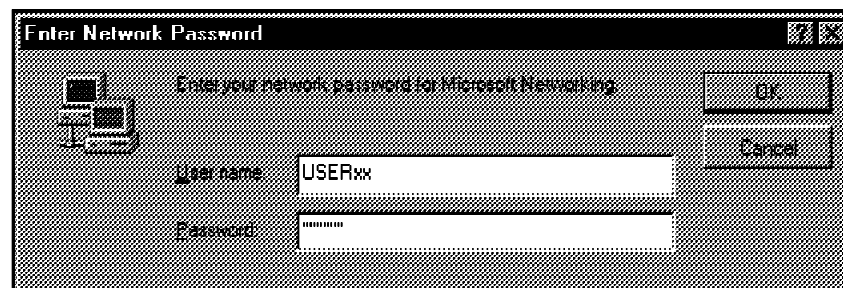
- Double-click to open the Connections. You should see the following folder.
- On the Connections folder, find the Network icon and click on plus (+) sign in front of the folder. You see the Network Applications icon.
- Double click on the Network Application icon. You should see three icon as the following:



- Double click on the Chess icon to run the chess application.
Running this application means that you have connection to the server and your USERxx have rights to run programs.
- Exit from the Chess program and shutdown your client properly.

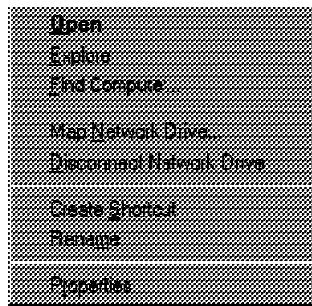
4. Test Windows 95

- Reboot the client machine.
- At the Boot Manager menu choose Windows.
- From the "OS Loader V4.00" choose Microsoft Windows
- After Microsoft Windows boots completely, you see the Enter Network Password screen as the following:



- From the "Enter Network Password" Screen, enter USERxx and PASSxx as User Name and Password. (xx refers to your group number.)

- Click right mouse button on the Network Neighborhood icon. Select 'Map Network Drive...' from the menu.



- You should see the following dialog. Select Drive N:, type '\\SERVERxx\WINOS2' for the path and click OK.



- Locate My Computer icon on Windows 95 Desktop.
- Double-click on My Computer icon to open it.
- Find the drive N: and double-click to open it.

This is a drive letter mapped to the directory C:\OS2\MDOS\WINOS2 of your server

- Find the file CALC. The icon looks like the following:



- Double-click on CALC to run the application.
- The calculator application will pop-up on the screen.

This is an WinOS2 application that is in the directory C:\OS2\MDOS\WINOS2 of your server.

Running this application means that you have connection to the server and your USERxx have rights to run programs.

- Exit from the CALC program and shutdown your client properly.

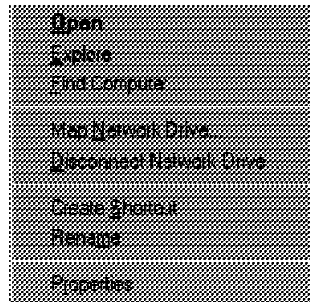
5. Test Windows NT Workstation 4.0.

- Reboot the client machine.
- At the Boot Manager menu choose Windows.

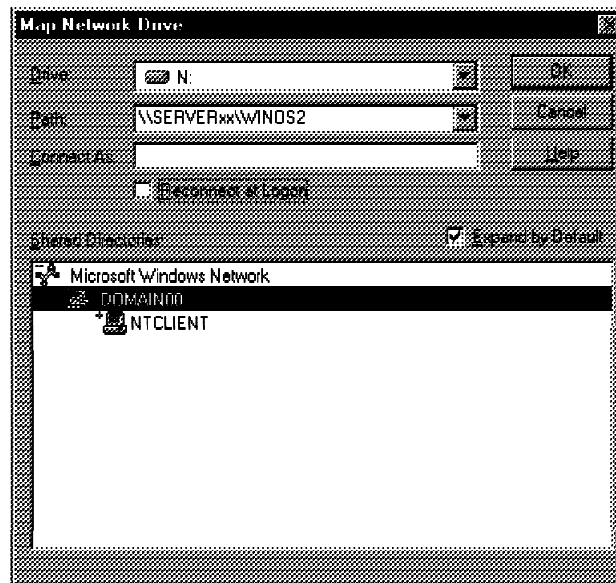
- From the OS Loader V4.00 choose Microsoft NT Workstation Version 4.00.
- In the Begin Logon Screen press Ctrl+Alt+Del to start the logon procedure.
- In the Logon Information Screen enter USERxx and PASSxx as User Name and Password. (xx refers to your group number.)

Note: User ID and password are case sensitive. Make sure that you type them in the CAPITAL letters, otherwise your logon attempt will fail.

- Click right mouse button on the Network Neighborhood icon. Select Map Network Drive... from the menu.



- You should see the following dialog. Select Drive N:, type '\\SERVERxx\WINOS2' for the path and click OK.



- Locate My Computer icon on NT Workstation Desktop.
- Double-click on My Computer icon to open it.
- Find the drive N: and double-click to open it.

This is a drive letter mapped to the directory C:\OS2\MDOS\WINOS2 of your server

- Find the file CALC. The icon looks like the following:



Calc

- Double-click on CALC to run the application.
- The calculator application will popup on the screen.

This is an WinOS2 application that is in the directory C:\OS2\MDOS\WINOS2 of your server.

Running this application means that you have connection to the server and your USERxx have rights to run programs

- Exit from the “CALC” program and shutdown your client properly.

Step 4 Test WorkSpace on-Demand 2.0

- ___ 1. Check if the remoteboot service on your server is started.
 - From OS/2 Window command prompt on your server, type the following command:
[C:\]NET START REMOTEBOOT
Wait until the REMOTEBOOT service started successful. It can return an error message if it was already started.
- ___ 2. Configure the client machine to boot from Network
 - We can have different types of machines and different network environments, so the instructors will help you to do this step.
 - Set your client boot sequence to start booting from the network first.
- ___ 3. Reboot the client Machine.
 - After reboot, you should see the WorkSpace On-Demand 2.0 loading.
 - When loading completed, you should see the logon screen.
 - You can use USERxx and PASSxx as user id and password to logon. (Don't forget to change the xx to your group number.)
 - After logon successful, you should see some applications.
 - Locate the “Chess” on the WorkSpace On-Demand 2.0 Desktop.
 - Double-click on the Chess icon to run the application.
 - Exit from the “Chess” program and shutdown your client properly.
 - Reset your client boot sequence to start booting from the hard disk first.

END OF LAB

Exercise 11. Sources of Problem Determination Data

What This Exercise is About

This exercise will explore some of the logs available for problem determination.

What You Should Be Able to Do

At the end of this exercise you should be able to determine the causes of certain system messages and the actions to take. You should be able to identify logs that may supply additional information about the problem.

Introduction

The online Serviceability and Troubleshooting guide is a primary source of information on problem determination procedures. For installation or upgrade (hardware or software) related problems you should refer to the Quick Beginnings guide, particularly Appendix B. There is also additional information on audit and network logs in the Network Administrator's guide.

Exercise Instructions

Review the following installation related logs:

- \OS2\INSTALL\WPINSTAL.LOG
- \OS2\INSTALL\IBMLSHST.LOG
- \OS2\INSTALL\INSTALL.LOG
- \OS2\INSTALL\INSTALL.HST
- \OS2\INSTALL\INSTALL.ERR
- \IBMINST\LOGS\LS\LOCAL.SRV
- \IBMINST\LOGS\TCPAPPS\TCPINST1.LOG
- \IBMINST\LOGS\NETSCAPE\LOCAL.NET

Note: Much can be determined about the files related to each component by reviewing these logs.

- ___ 1. Open the LS Audit Log facility and display the current audit log. Clear the audit log.
- ___ 2. Open the LS Error Log facility and display the current error log. Reverse the order of the error log entries. Clear the error log.
- ___ 3. Both of these logs can be accessed via the command line NET AUDIT or NET ERROR commands. Type NET HELP for more information.
- ___ 4. Using the system editor, review the contents of \IBMCOM\LANTRAN.LOG.

To create an error, use a network resource on one the additional servers from the DC or backup DC. Access the resource. Then remove the LAN cable from the additional server, and attempt to access the resource again. Note the error message. Review the LS Error Log again. Review the contents of LANTRAN.LOG on the additional server.

- ___ 5. Use the command line to review the following system messages:
 - HELP SYS3174
 - HELP SYS1722
 - HELP NET3141
 - HELP NET3101
 - HELP NET3122

END OF LAB

Exercise 12. Gathering Additional Problem Determination Data

What This Exercise is About

This exercise will familiarize the student with the tools and procedures which may be required to gather additional problem determination data to isolate more complex failures.

What You Should Be Able to Do

You should be able to identify the purpose, setup requirements, invoking procedures, and data files collected for the following tools:

- System trace facility
- Strace facility
- IPtrace
- Netstat output
- SMB Tool
- Process Dump facility
- System Dump facility
- Debug Kernel

In some cases, you should be able validate that the data collected is valid for the kind of problem being analyzed.

Introduction

There are a variety of tools covered in this lab. References for each tool are in various locations. The Online command reference covers an overview of the more classic tools. The System trace facility and the Strace facility have their own online help file. In addition, there are text files describing the latest enhancements in the \OS2\SYSTEM\RAS folder. The TCP/IP tools are described in the TCP/IP online guide.

Some of the tools or information files are not installed automatically, and must be manually added after installation is complete (SMBTool, SnapDump, Debug Kernel, OS/2 Debug Handbook).

The instructor will supply a “sample” application that has a minor problem. This will be used in generating System trace data and a process dump.

Exercise Instructions

System Trace facility

Review the online documentation OS/2 Trace Guide in the Troubleshooting folder. Information under the Trace Doc icon may also prove useful.

- ___ 1. Turn on tracing with the command:
 - TRACE ON /D:SLOT,PROCNAME,SSESP,CSEIP /B:256
- ___ 2. Turn on tracing for Machine exceptions with:
 - TRACE ON 3
- ___ 3. Turn on tracing for Memory Allocations with:
 - TRACE ON KERNEL(VM)
- ___ 4. Clear the trace buffer with:
 - TRACE /C
- ___ 5. Run the "failing" program:
 - DEMO32
- ___ 6. Dismiss the trap pop-up then suspend tracing with:
 - TRACE / S
- ___ 7. Format the resulting trace buffer with:
 - TRACEFMT
- ___ 8. Review the trace data, save it to a file both as formatted and unformatted.

Strace facility

Review the online documentation OS/2 Trace Guide in the Troubleshooting folder.

- ___ 9. Turn on the strace facility with the command:
 - STRACE ON
- ___ 10. Initialize tracing with:
 - STRACE INIT
- ___ 11. Enable performance tracing with:
 - STRACE ENABLE
- ___ 12. Review the STRACE command line parms with:
 - STRACE -?] more
- ___ 13. Get the STRACE buffer into a file with:
 - STRACE GET
- ___ 14. Generate ASCII and MTE output with:
 - STRACE POST

- __ 15. Disable STRACE with:
 - STRACE RESET
- __ 16. Review the generated files STRACE.MTE and STRACE.OUT.

IPTrace facility

Review the online documentation TCP/IP Guide in the Tasks folder under IPTRACE and IPFORMAT.

- __ 17. Turn IP tracing with the command:
 - START IPTRACE
- __ 18. Ping your local loopback address with:
 - PING 127.0.0.1
- __ 19. Let the ping run a bit (at least 3 responses) and then switch to the started IPTRACE session and end it with Control-C or by closing the session from the task list.
- __ 20. Format the raw IP trace file with:
 - IPFORMAT >IPTRACE.FMT
- __ 21. Review the resulting output file IPTRACE.FMT. You should be able to locate the ICMP Echo request and Echo Reply in the trace output.

Netstat

Review the online documentation TCP/IP Guide in the Tasks folder under NETSTAT.

- __ 22. Capture the status of the interfaces with:
 - NETSTAT -n >NETSTAT.N
- __ 23. Capture the addresses and netmasks assigned to the interfaces with:
 - NETSTAT -a >NETSTAT.A
- __ 24. Capture the ARP table entries with:
 - NETSTAT -p >NETSTAT.P
- __ 25. Capture the local Routing table entries with:
 - NETSTAT -r >NETSTAT.R
- __ 26. Start the FTP daemon with:
 - START FTPD
- __ 27. Capture the open ports with:
 - NETSTAT -s >NETSTAT.S
- __ 28. Review the resulting files NETSTAT.? you created above. You may also wish to look at the output generated from the -i -t -u options to NETSTAT.

SMB Tool

- __ 29. This tool is not installed automatically. You will need to obtain it from the \CID\SERVER\IBMLS\IBM500P1 directory of the CD-ROM. You may place it anywhere you wish on the system, but a typical directory is

\IBMLAN\PRODAIDS on the boot drive. This is the directory structure in the SMBTOOL.ZIP file, so you can usually accomplish this by making the root of the boot drive your default directory (C:\ on the lab machines) and executing the command:

- PKUNZIP -d x:\CID\SERVER\IBMLS\IBM500P1\SMBTOOL.ZIP
where x: above is the drive letter for your CD-ROM.
- ___ 30. Modify your PROTOCOL.INI file, in the $\frac{1}{8}$ netbeui_nif' section, and set
- OS2TRACEMASK = 0x7FF
- ___ 31. Reboot your system.
- ___ 32. Verify the requester is started, and that you have a net use for at least one remote resource with:
- NET USE
- ___ 33. Verify you have the OS/2 system trace facility running with:
- TRACE ON /B:256
- ___ 34. Start the SMBTool. (either create a program object for it, or start it from the command line).
- ___ 35. Using the Trace pull-down, turn on the redirector trace. Select a trace file name to save the trace data.
- ___ 36. Make a directory on one of the remote resources, EG:
- MD x:\TEST
- ___ 37. Change to that directory, EG:
- CD x:\TEST
- ___ 38. Copy your config.sys to this directory, EG:
- COPY c:\config.sys x:\TEST
- ___ 39. Turn off the Redirector trace.
- ___ 40. Double click any of the trace entries listed to see the SMB data.
- ___ 41. Using the file open dialog, read the trace file back in.

Process Dump facility

The latest documentation for the process dump facility is located in the \OS2\SYSTEM\RAS folder as a text file. There have been significant enhancements in this facility, so it is recommended that this file be used for reference..

There are a lot of possible options that could be used with the procdump facility. The exact options useful for any particular problem will usually be supplied by support personnel.

- ___ 42. Make a directory to hold the process dumps with:
- MD c:\PDUMP (Note: you can place anywhere you wish).
- ___ 43. Enable the system for process dumps to be taken to this directory with:
- PROCDUMP ON /L:c:\PDUMP

- __ 44. Run the "failing" application:
 - DEMO32
- __ 45. Note PDUMP.000 is created in the c:\PDUMP directory and it's size.
- __ 46. Change the default application and system data dumped with the following:
 - PDUMPUSR ALL
- __ 47. This will cause significantly more data to be dumped, so it will take a while to dump the data when we generate the failure again with the command:
 - DEMO32
- __ 48. Compare the sizes of PDUMP.000 and PDUMP.001.
- __ 49. Open the PMDF formatter in the Problem Determination Tools Folder. Using the file menu dropdown, open PDUMP.000. Verify that it formats correctly. Try the .p command from the command line.
- __ 50. Now open PDUMP.001 and verify it formats correctly. Try the .p command again and see some of the additional data has been dumped.

System Dump facility

The System Dump facility is an intrusive facility. The system does a complete halt and then dumps all of physical memory to a partition or to diskettes. The system is then rebooted automatically (and chkdsk will run). There is some preparation that needs to be done to prepare the system to take system dumps.

Review the Command Reference information in the Reference and Commands folder. Select the OS/2 Commands by Task Category, and then select Problem Determination. There are various options worth exploring, but focus on the statement TRAPDUMP for this lab. It describes the setup required.

You will need to create a dedicated dump partition on your systems. This must be a compatibility volume/partition. This partition must be the size of your RAM, plus a bit more (usually 1MB more is enough). Format this partition as FAT with a volume label of SADUMP. Do not override the system assigned drive letter.

- __ 51. Modify your config.sys to add the following:
 - TRAPDUMP=R0,x: where x: is the drive letter of your dump partition. And then reboot.
- __ 52. Use the CTL-ALT-F10-F10 key sequence to force a system dump.
- __ 53. When the system has rebooted, use PMDF to validate that you can access and read the DUMPDATA.001 file placed on the dump partition.

Note: With the improvements in the process dump facility, it is very rare that the statement TRAPDUMP=ON,x: will be required.

Debug Kernel

The best source of documentation on setting up and using the Debug Kernel is in the OS/2 Debugging Handbook. An INF format file is shipped on the CD in \BOOKS\INFZIP\SG244640.ZIP.

The Debug Kernel itself is not automatically installed. It is shipped on the CD in the files located under \OS2IMAGE\DEBUG\UNI for a uniprocessor system and under \OS2IMAGE\DEBUG\SMP for a multiprocessor system.

We will not actually be installing the Debug Kernel in this lab, but you should understand the steps needed, and how to test if you have installed it correctly.

- __ 54. Unzip the Debugging Handbook off the CD with:
 - PKUNZIP x:\BOOKS\INFZIP\SG244640.ZIP (where x: is the CD)
- __ 55. Open the resulting INF file with:
 - VIEW SG244640.INF
- __ 56. Expand the Kernel Debugger User Guide section and review the Kernel Debugger Local Setup and Kernel Debugger Remote Setup sections.
- __ 57. Review the information in the \OS2IMAGE\DEBUG\UNI\README.DBG.
- __ 58. To copy the OS2 symbol files for debugging use:
 - XCOPY x:\OS2IMAGE\DEBUG\SYMBOLS\OS2* c:\OS2 /s where x: is the CD and c: is the boot drive)
- __ 59. To copy the Hstrict Debug Kernel use:
 - XCOPY x:\OS2IMAGE\DEBUG\UNI\OS2KRNLB.* c:\ (where x: is the CD and c: is the boot drive)

If you were actually going to activate the Debug Kernel, you would then swap the OS2KRNL and OS2KRNLB files and reboot. Keep in mind that OS2KRNL has the system and readonly attributes set.

END OF LAB

